IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

SILICONARTS TECHNOLOGY US INC., Plaintiff, v. **BOXX TECHNOLOGIES LLC,** Defendant.	Civil Action No. 1:25-cv-400 **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff SiliconArts Technology US Inc. ("Plaintiff" or "SiliconArts Technology") files this Complaint against Defendant BOXX Technologies LLC and alleges as follows:

NATURE OF SUIT

1.   This is a claim for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

THE PARTIES

I.   SILICONARTS TECHNOLOGY

2.   SiliconArts Technology is a corporation duly organized and existing under the laws of the State of Texas, having a place of business located at 7215 Bosque Boulevard, Suite 211, Waco, Texas, 76710.

3.   SiliconArts Technology is the current owner of all rights, title, and interest in and to U.S. Patent No. 9,965,889 (the "'889 Patent," "Asserted Patent," or "Patent-in-Suit"), including the right to sue for past damages.

4.   The technological developments covered by the Patent-in-Suit have now become a cornerstone of modern ray tracing graphics processing units ("GPUs")—especially hardware-

accelerated, real-time ray tracing cores, chips, and processors—in the United States and Texas, including within this District.

5.   Such developments in ray tracing are an essential element for realizing realistic graphics in visual effects, animation, film editing, video games, and other applications where processing times have previously limited or prohibited the use of ray tracing and, instead, less desirable and/or less computationally intensive graphic processing techniques such as rasterization have been used.

6.   The technologies of the Patent-in-Suit have been praised for advancing the field of real-time ray tracing GPU technology—including receiving multiple technology awards.

7.   Not surprisingly, the innovations described in—and protected by—the Patent-in-Suit have been incorporated into products and services offered by BOXX and others.

II.   BOXX

8.   Defendant BOXX Technologies LLC ("BOXX") is a Delaware corporation. BOXX is registered with the State of Texas and may be served with process through its registered agent, Corporation Service Company d/b/a CSC-Lawyers Incorporating Service Company, 211 E. 7th Street, Suite 620, Austin, Texas 78701. BOXX maintains its headquarters in this District at 4616 W. Howard Lane, Suite #105, Austin, Texas 78728.

9.   On information and belief, BOXX makes, uses, offers for sale, sells in the United States, and/or imports into the United States, certain products that incorporate graphics processing units with improved ray-tracing accelerators and configures them to perform ray tracing, including at least deskside workstations (e.g., APEXX S-, E-, W-, T-, T PRO-, A-, P-, M-, and AI-Series), rackmounts (e.g., RAXX S-, W-, T PRO-, AI-, and P-Series), data center modules (e.g., FLEXX A- and S- Series), and BOXX Cloud, among other substantially similar products and services using the same (collectively, the "Accused Products").

10.   BOXX offers for sale and sells the Accused Products to numerous customers in the United States, including to customers in this District.

JURISDICTION AND VENUE

11.   This Court has subject matter jurisdiction over patent infringement claims pursuant to 28 U.S.C. §§ 1331 and 1338, as those claims arise under the patent laws of the United States (35 U.S.C. §§ 1 *et seq.*).

12.   BOXX is subject to this Court's personal jurisdiction consistent with the principles of due process. Personal jurisdiction exists generally over BOXX because BOXX has sufficient minimum contacts and/or has engaged in continuous and systematic activities in the forum as a result of business conducted within Texas, including in the Western District of Texas. For example, on information and belief, BOXX has committed, and continues to commit the tort of patent infringement in the State of Texas and this District; BOXX purposefully availed itself of the privileges of conducting business in the State of Texas and this District; and BOXX regularly conducts and solicits business—including substantial marketing and sales of products—within the State of Texas and this District.

13.   Personal jurisdiction also exists over BOXX because BOXX, directly or through subsidiaries, agents, representatives, or intermediaries makes, uses, sells, offers for sale, imports, advertises, makes available, and/or markets products and/or services within Texas, including in the Western District of Texas, that infringe one or more claims of the Asserted Patent. Further, on information and belief, BOXX has placed or contributed to placing infringing products and/or services into the stream of commerce knowing or understanding that such products and/or services would be sold and used in this District.

14.   On information and belief, BOXX designs, manufactures, and supports its products from its company headquarters in Austin, Texas.

15.   Through its website, BOXX offers for sale and/or sells the Accused Products, such as the APEXX A3, directly to customers in the United States, including in this District.

Image of APEXX A3 Workstation

16.   BOXX also provides a dedicated phoneline within the United States (877-877-BOXX) where potential customers can contact "Expert BOXX performance specialists" with technical questions and to discuss solutions for their professional software workflows.

17.   In previous cases, BOXX has not contested that this Court has personal jurisdiction over it. *See, e.g.*, *Mallard IP LLC v. BOXX Technologies LLC*, No. 6:22-cv-00433, Dkt. No. 9 ("BOXX does not challenge the Court's personal jurisdiction over BOXX for purposes of this action.").

18.   Venue is proper in the Western District of Texas pursuant to 28 U.S.C. §§ 1391(b)-(c) and/or 1400(b), including but not limited to because BOXX has committed acts of infringement in this District and has a regular and established place of business in this District.

19.   As shown in the photograph below, BOXX maintains a physical office in this District located at 4616 W. Howard Lane, Suite #105, Austin, Texas 78728.

Image of BOXX Austin, Texas Office obtained via Google Maps

20.   BOXX's Austin office is a physical, geographical location in this District from which BOXX carries out its business. On information and belief, BOXX designs, manufactures, and supports its products from its company headquarters in Austin, Texas. On information and belief, BOXX has been headquartered in this District since at least 1998.

21.   BOXX's location in this District is a regular and established places of business under 28 U.S.C. § 1391, 28 U.S.C. § 1400(b), and *In re Cray, Inc.*, 871 F.3d 1355, 1360 (Fed. Cir. 2017).

22.   In addition, BOXX has not disputed that venue is proper in this District in cases filed against it in this District. *See, e.g.*, *Mallard IP LLC v. BOXX Technologies LLC*, No. 6:22-cv-00433, Dkt. No. 9 (admitting that BOXX "has a regular and established place of business in this judicial district").

<u>**FACTUAL ALLEGATIONS**</u>

I.   ASSERTED PATENT

23.   The '889 Patent is entitled "Ray Tracing Core and Ray Tracing Chip Having the Same." The United States Patent and Trademark Office duly and legally issued the '889 Patent on May 8, 2018, from U.S. Patent Application No. 15/078,643, filed on March 23, 2016.

24.   The '889 Patent is a Continuation of U.S. Patent Application No. 13/375,112 filed on November 29, 2011, which is a National Stage Application under 35 U.S.C. § 371 of PCT International Patent Application No. PCT/KR2010/003173 filed on May 19, 2010, which claims priority to Korean Application No. KR 10-2009-0046909 filed on May 28, 2009.

25.   A true and correct copy of the '889 Patent is attached hereto as **Exhibit A** and is incorporated by reference herein.

II.   SILICONARTS TECHNOLOGY'S RAY TRACING TECHNOLOGY

26.   Traditionally, graphics processing has been highly computationally demanding, with techniques chosen based on the available time and resources for rendering objects or areas in a scene. Two primary methods in graphics processing are rasterization and ray tracing. Real-time computer graphics have long relied on rasterization to render three-dimensional objects on a two-dimensional screen due to its speed, even though it may not always achieve the same visual fidelity as ray tracing. In contrast, ray tracing is typically reserved for applications with greater computational resources and extended rendering times, making it a dominant technique in modern filmmaking, where studios use vast server farms that can take days or even weeks to render complex visual effects.

27.   Rasterization constructs objects on the screen using a mesh of virtual triangles, or polygons, that form 3D models. Within this virtual mesh, the corners of each triangle (i.e., vertices) intersect with the vertices of other triangles of different sizes and shapes. Each vertex as associated

information, including its spatial position, color, texture, and "normal," which is used to determine the way the surface of an object is facing. Rasterization converts these polygons into pixels on a 2D display, applying shading and additional processing to the pixels before producing the final rendered output.

28.   Ray tracing, in contrast, simulates the way light interacts with objects in the real world by tracing the paths that light rays take as they bounce between surfaces before reaching the viewer's eyes. By working in reverse, ray tracing follows the trajectory of a light ray through each pixel on a 2D display into a 3D scene. When the ray intersects an object, the point of contact influences the resulting color and illumination, allowing for realistic shadows, reflections, and refractions that can be nearly indistinguishable from real-life photography or video footage.

29.   While both techniques are computationally intensive, ray tracing is generally considered to be more computationally intensive such that rasterization has been traditionally used in applications where computational power and/or time is limited. For example, ray tracing has been practical when generating realistic graphics for movies scenes and for applications in cinema. However, this application of ray tracing is possible because movie makers can take as long as they like to render a single frame. Accordingly, such ray tracing occurs in offline render farms with the benefit of extensive computational power and ample time to wait for a scene to render.

30.   Given the high computational tax and time-intensive nature of ray tracing, rasterization has historically been the primary technique used for generating graphics in applications such as video games—where frames, areas, scenes, and other objects must be generated and rendered in real time (e.g., rendering as the viewer is observing/interacting with the media).

31.   While rasterization has yielded acceptable results for rendering some aspects of three-dimensional graphics, ray tracing techniques are widely considered to be superior (e.g., more realistic, more inclusive of reflections/shadows/light, etc.).

32.   However, systems, products, processors, and other Accused Products that employ the patented accelerated ray tracing techniques enable rapid, high-performance graphics rendering and processing that generate higher quality graphics than other systems. Further, the technology provides these benefits at lower power and operational costs. The patented inventions significantly reduce the time and/or computational intensity of generating graphics via ray tracing while achieving renderings that account for realistic light, reflections, shadows, refractions, and other illumination phenomena. These improvements are a quantum leap forward from prior systems and bring realistic, cinema-style graphics to media forms where such benefits were previously prohibited by cost and/or time.

33.   As noted by tech magazine APAC CIO Outlook:

SiliconArts, a Korean tech startup, developed RayCore, the real-time ray tracing graphics processor (GPU) for the first time in graphics hardware history. RayCore is the next-generation GPU that is used in rendering high-quality 3D graphics whose graphics performance surpasses that of rasterization GPU approach. RayCore, developed by SiliconArts, is a hardware that has overcome the limitations of the existing ray tracing approach, applying all of the benefits of ray tracing to its product that can render cinema-quality 3D graphics effects on real-time basis. Particularly, RayCore is designed to consume the industry's lowest power level in order to implement both User Interface and User Experience on mobile platforms and smartphones.[1]

34.   The '889 Patent generally relates to 3D graphics processing and more particularly to devices for a 3D graphics processing technique known as ray tracing and improvements to the same. For example, a ray tracing core and/or a ray tracing chip having the same as discussed in the

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[1] https://hpc.apacciooutlook.com/vendors/top-10-hpc-companies-2019-rid-266.html

'889 Patent are particularly useful for generating images and graphical effects including realistic reflection, refraction, shadows, and/or shading. The technology claimed and described in the '889 Patent particularly provides devices for real-time, hardware accelerated ray-tracing that are foundational for realizing realistic graphics in content such as movies, games, and simulations.

35.   The patented accelerated ray tracing technology achieves a leap in graphics quality that eluded the industry for over a decade and that also increases system power optimization and performance. Rather than remaining an unobtainable goal with limited applications, thanks to the patented accelerated ray tracing technology, real-time ray tracing has become practical with newfound applicability to the gaming, entertainment, and graphics processing industries, among others.

III.   BOXX'S USE OF SILICONARTS TECHNOLOGY'S PATENTED DEVELOPMENTS

36.   As further discussed below, BOXX directly and indirectly infringed—and continues to directly and indirectly infringe—the Asserted Patent under 35 U.S.C. § 271(a)–(c) by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States the Accused Products and by inducing and/or contributing to the direct infringement by third parties (including, for example, BOXX's customers in this District and elsewhere in the United States) of at least one claim of the Asserted Patent.

37.   Under typical configurations, the Accused Products provide real-time ray tracing while enjoying other benefits of the patented technology, such as a lower latency from the hardware stack of the Accused Products.

38.   Hardware accelerated real-time ray tracing provides greatly enhanced visual graphics that account for illumination, shadows, reflection, and light refraction without sacrificing power usage and at greatly reduced computational cost. Such real-time ray tracing makes

previously unachievable cinema-quality graphics available for digital media such as movies, video games, virtual simulation applications, and other media.

39.   On information and belief, BOXX customers choose BOXX products over the competition because of the ability to support real-time ray tracing, as illustrated by the following testimonial:

> "Performance is primary," [Alejandro Boccardi] says, "and BOXX Cloud allowed us to improve our experiences. We wanted the real-time raytracing feature Unreal Engine launched a few years ago. We have very complex projects with a very high level of detail. Enabling that with all the reflections we have on the buildings, facades, etc. is very taxing on the server. Our customers needed that in their experience, but it was not possible with the available hardware from AWS. That was the main drive to switch to BOXX Cloud. . . . We showcase it on BOXX Cloud because when we want to enable the ray tracing functionality. It simply cannot be run on the AWS service."[2]

40.   BOXX Cloud Services use the Accused Products, such as workstations with high performance GPUs, to support "real-time ray tracing."

41.   Certain of the Accused Products, including those with GPUs released years after the priority date of the Patent-in-Suit, provide a new core GPU architecture that significantly improves upon efficiency and performance for PC gaming, professional graphics applications, and deep learning inferencing. This advanced core architecture incorporates hardware-based accelerators and a hybrid rendering approach to provide rasterization, real-time ray tracing, AI, and simulation, enabling stunning realism in PC games, groundbreaking neural network-powered effects, cinematic-quality interactive experiences, and fluid interactivity when creating or navigating complex 3D models. Hardware-accelerated ray tracing implemented in the GPU architecture saves the GPU processor from spending the thousands of instruction slots per ray.

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[2] https://boxx.com/resources/customer-stories/making-it-look-amazing

42. A new GPU processor architecture with improved shader execution efficiency, and a new memory system architecture supporting the latest synchronous graphics random-access memory technology, are the key enablers for the GPU architecture's significant boost in graphics performance. On information and belief, one or more of these key enablers are elements of and/or are covered by the scope of the Patent-in-Suit.

COUNT I: INFRINGEMENT OF THE '889 PATENT

43. SiliconArts Technology incorporates by reference the preceding paragraphs as though fully set forth herein.

I. DIRECT INFRINGEMENT

44. In violation of 35 U.S.C. § 271(a), BOXX is and has been directly infringing one or more of the '889 Patent's claims, including at least Claim 1, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, without authority, ray tracing products, including but not limited to the Accused Products, as described above.

45. BOXX is infringing claims of the '889 Patent, including at least Claim 1, literally and/or pursuant to the doctrine of equivalents.

46. Claim 1 of the '889 Patent is directed to:

1. A ray tracing core comprising:

a ray generation unit configured to generate an eye ray based on eye ray generation information and to generate a shading ray according to a shading ray type based on shading information, the shading information having a priority over the eye ray generation information and the eye ray generation information including a screen coordinate value;

a plurality of T&I (Traversal & Intersection) units with MIMD (Multiple Instruction stream Multiple Data stream) architecture, each of the plurality of T&I units configured to independently and concurrently process a ray with a corresponding ray type and to check whether there exists a triangle intersected with the received at least one eye ray, the triangle configuring a space in an AS (Acceleration Structure),

wherein for a ray-triangle hit point in the intersected triangle, the shading information is generated for a secondary ray according to material information in the intersected triangle or for a shadow ray for light source, and

wherein each of the plurality of T&I units includes an L1 cache and the ray tracing core includes a common L2 cache for the L1 caches in the plurality of T & I units, and when an L1 cache miss occurs in a current ray, a requirement for an L2 cache access is inputted to L1 Addr (Address) FIFO (First in First Out) and when the L2 cache access is hit, an address and data is inputted to an L1 Addr/Data (Address and Data) FIFO and otherwise, other requirement for an external memory is inputted to an L2 Addr FIFO.

47.   The Accused Products practice every element of one or more claims of the '889 Patent, including at least Claim 1.

48.   For example, the APEXX A3 can be configured, and has been configured, with as many as two GPUs.

49.   The Accused Products have a ray tracing core. For example, on information and belief, the Accused Products' GPUs include at least one graphics processing cluster ("GPC") and a shared L2 Cache. On information and belief, each GPC includes one or more core processing units.

50.   The Accused Products include at least one ray generation unit, such as a central processing core within the core processing unit. For example, each core processing unit in the GPUs contains a number of parallel computing cores (e.g., "programmable shading cores" or "shaders").

51.   On information and belief, the parallel computing cores/shaders and/or other features in the Accused Products include a ray generation unit configured to generate an eye ray based on eye ray generation information and to generate a shading ray according to a shading ray type based on shading information.

52.   For example, BOXX Lumion workstations, such as the APEXX A3,[3] include graphics cards that feature improved ray-tracing accelerators. BOXX Lumion workstations configured with Lumion 2023 provide a "render engine that blends both rasterization and ray tracing."[4] According to BOXX, "Ray tracing v.09 enables realistic light, shadows, and reflections with the touch of a button and make the quality of physically-based rendering (PBR) materials higher than ever."[5]

53.   In the Accused Products, a parallel computing core implements a shader which performs various kinds of shading operations such as vertex shading, pixel shading, and geometry shading. Generating an eye ray (e.g., a primary ray or a view ray) is also one of the shading operations.

54.   In the Accused Products, shading information has a priority over the eye ray generation information. For example, when calculating a reflection from a floor, the Accused Products generate a reflection ray after shading, rather than immediately generating a new eye ray, which means shading information at the hit point has a higher priority than eye ray generation information as recited in Claim 1.

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[3] *See, e.g.*, https://boxx.com/systems/workstations/a-class/apexx-a3-06.

[4] https://boxx.com/solutions/architecture-engineering-and-construction/lumion

[5] *Id.*

55.   Additionally, the Accused Products include a ray generation unit configured to generate an eye ray based on eye ray generation information where "the eye ray generation information includ[es] a screen coordinate value" as recited in at least Claim 1. For example, the variables eye, U, V, and W allow the host API to specify the position and orientation of the camera. A variable "direction" for eye ray generation is derived by normalizing the camera's orientation (U, V, W) relative to the screen coordinates and this variable indicates where the ray is projected onto the screen from the eye.

56.   Further, on information and belief, the Accused Products include "a plurality of T&I (Traversal & Intersection) units with MIMD (Multiple Instruction stream Multiple Data stream) architecture, each of the plurality of T&I units configured to independently and concurrently process a ray with a corresponding ray type" as recited in Claim 1. For example, the Accused Products include GPUs with ray tracing cores that accelerate BVH traversal of geometries and can process multiple rays simultaneously using a MIMD architecture.

57.   The core processing unit processes thousands of generated ray threads independently and concurrently with a corresponding ray type. A particular type of shader (e.g., any hit shader, closest hit shader) takes that type into account when processing a ray.

58.   As an additional example, "each of the plurality of T&I units [is] configured to independently and concurrently process a ray with a corresponding ray type and to check whether there exists a triangle intersected with the received at least one eye ray, the triangle configuring a space in an AS (Acceleration Structure)" as recited in Claim 1. For instance, the improved ray-tracing accelerators handle all the BVH traversal and ray-triangle intersection testing, relieving the core processing unit from spending the thousands of instruction slots per ray—potentially a massive number of instructions for an entire scene. The improved ray-tracing accelerator includes

two specialized units: one doing bounding box tests and the other doing ray-triangle intersection tests. The core processing unit simply launches a ray probe, and the improved ray-tracing accelerator does the BVH traversal and ray-triangle tests, returning a hit or no-hit to the core processing unit. This allows the core processing unit to focus on other graphics or compute work.

59.   As a further example, "each of the plurality of T&I units [is] configured to" "check whether there exists a triangle intersected with the received at least one eye ray, the triangle configuring a space in an AS (Acceleration Structure)," as recited in at least Claim 1. On information and belief, the Accused Products use a tree-based acceleration structure composed of multiple hierarchically-arranged bounding boxes (bounding volumes) encompassing or surrounding different amounts of scene geometry.

60.   The Accused Products also comprise a ray tracing core "wherein for a ray-triangle hit point in the intersected triangle, the shading information is generated for a secondary ray according to material information in the intersected triangle or for a shadow ray for light source," as recited in at least Claim 1 of the Asserted Patent. For example, the Accused Products are capable of supporting a closest hit shader that can perform material shading at the hit point in the intersected triangle. Specifically, when an improved ray-tracing accelerator performs the Traversal & Intersection test to find the hit point, shading information necessary to generate a next ray (i.e., a secondary ray and a shadow ray) by the core processing unit is generated.

61.   The ray generation unit is further configured "to generate a shading ray according to a shading ray type based on shading information" wherein "the shading information is generated for a secondary ray according to material information in the intersected triangle or for a shadow ray for light source" as recited in Claim 1. The Accused Products are capable of supporting

different types of rays with different processing purposes, for example, rays to compute color values at the hit point and shadow rays to determine visibility of light sources.

62.   Additionally, each of the plurality of T&I units in the Accused Products includes an L1 cache, and the ray tracing core includes a common L2 cache for the L1 caches in the plurality of T&I units. On information and belief, each improved ray-tracing accelerator is coupled to an L1 cache and has a common L2 cache for the L1 caches.

63.   The Accused Products also comprise a ray tracing core wherein, "when an L1 cache miss occurs in a current ray, a requirement for an L2 cache access is inputted to L1 Addr (Address) FIFO (First in First Out) and when the L2 cache access is hit, an address and data is inputted to an L1 Addr/Data (Address and Data) FIFO and otherwise, other requirement for an external memory is inputted to an L2 Addr FIFO," as recited in at least Claim 1.

64.   For example, on information and belief, the cache architectures for the Accused Products include a load store unit (LSU) for "pipeline" data processing and miss stages for each of L1 and L2 caches. Additionally, on information and belief, the "pipelines" operate in FIFO (First in First Out) order.

65.   In addition, BOXX is infringing at least Claim 9 of the '889 Patent, literally and/or pursuant to the doctrine of equivalents.

66.   Claim 9 of the '889 Patent is directed to:

9. The ray tracing core of claim 1, further comprising:

a setup processing unit configured to divide a screen into a plurality of blocks for increasing hit ratio of each of the plurality of the T&I units and determine eye ray generation order based on each of the plurality of the blocks.

67.   The Accused Products practice every element of Claim 9 of the '889 Patent.

68.   On information and belief, the Accused Products provide a setup processing unit configured to divide a screen into a plurality of blocks for increasing hit ratio of each of the plurality of T&I units.

69.   For example, BOXX offers state-of-the-art CPU and GPU Arnold renderer workstations which dramatically accelerate local rendering. Autodesk Arnold is an advanced Monte Carlo ray tracing renderer built for the demands of CPU or GPU-based rendering of feature-length animation and visual effects.

70.   BOXX advertises that the APEXX W4, an Arnold renderer workstation, supports up to four GPUs. According to Autodesk, Arnold will use all the GPUs at full capacity, and work is divided between the GPUs evenly. On information and belief, the Accused Products divide a screen into a plurality of blocks among the multiple GPUs.

71.   On information and belief, the Accused Products configured with Arnold bin rays together in screen tiles to increase ray tracing performance with the assumption that neighboring pixels will correspond to neighboring surface points.

72.   On information and belief, the L1 cache in the Accused Products is optimized for 2D spatial locality, so threads of the same warp that read texture or surface addresses that are close together in 2D space will achieve optimal performance.

73.   The Accused Products determine eye ray generation order based on each of the plurality of the blocks. On information and belief, by organizing rays into blocks or tiles, the Accused Products determine the order of eye ray generation.

74.   In view of the above, BOXX has directly infringed, and continues to infringe, one or more claims of the Asserted Patent by making, using, selling, offering for sale, and/or importing

the Accused Products in the United States, including within the Western District of Texas, without authorization.

75.   By facilitating these sales and deliveries in the United States, including in this District, BOXX engages in infringing acts within the meaning of 35 U.S.C. § 271(a).

II.   INDIRECT INFRINGEMENT

76.   In violation of 35 U.S.C. §§ 271(b) and (c), BOXX is and has been infringing one or more of the '889 Patent's claims, including at least Claims 1 and 9, indirectly by inducing the direct infringement committed by others in this District and elsewhere in the United States, and by contributing to the direct infringement committed by others in this District and elsewhere in the United States.

77.   BOXX has actual knowledge of the '899 Patent, and its infringement thereof described above, at least as of the date of filing of this Complaint.

78.   In violation of 35 U.S.C. § 271(b), BOXX is and has been infringing one or more of the '889 Patent's claims, including at least Claims 1 and 9, indirectly by inducing the direct infringement committed by others, such as BOXX's customers and end-users, in this District and elsewhere in the United States. For example, BOXX's customers and/or end-users directly infringe via their use of the Accused Products and/or their manufacture, use, sales, and/or offers for sale in the United States and/or importation into the United States of other products that incorporate the Accused Products in manners that infringe the '889 Patent, including at least Claims 1 and 9.

79.   On information and belief, BOXX furnishes instructive materials, technical support, and information concerning the operation and use of the Accused Products and markets and advertises such products on its website, in videos, at conferences, and elsewhere to induce third parties, including BOXX's customers and/or end-users to use the Accused Products, and/or to use, sell, and/or offer for sale in the United States and/or import into the United States other

products incorporating the Accused Products in manners that would infringe one or more of the claims of the '889 Patent, including at least Claims 1 and 9.

80.   For example, BOXX promises that its performance specialists can help customers find the right workstation purpose-built for their applications and workflow. BOXX Technical Support is based in the USA and located at BOXX headquarters in Austin, Texas. BOXX supports customers and their workflows, including recreating issues they may experience (even the most obscure) by utilizing BOXX's own hardware and software.[6]

81.   BOXX further has indirectly infringed, and continues to infringe, the Asserted Patent within the Western District of Texas by inducing infringement by its customers located in this District. For instance, Thrillbox, an immersive media platform specializing in 360° content and behavioral analytics for VR, AR, and 360° videos, is based in Austin. They have collaborated with clients like Google and the Austin City Limits Music Festival. Thrillbox relies on BOXX workstations to power their solutions.

82.   At a minimum, BOXX has had actual notice of the '889 Patent since the filing of this Complaint, yet continues to induce infringement of at least Claim 1 and Claim 9 of the '889 Patent by its customers and end-users.

83.   In violation of 35 U.S.C. § 271(c), BOXX is and has been infringing one or more of the '889 Patent's claims, including at least Claims 1 and 9, indirectly by contributing to the direct infringement committed by others, such as BOXX's customers and end-users, in this District and elsewhere in the United States. For example, BOXX's customers and/or end-users directly infringe via their use of the Accused Products in the United States, and/or their manufacture, use,

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[6] https://boxx.com/support/hardware-technical-support

sales, and/or offers for sale in the United States of other products that incorporate the Accused Products in manners that infringe the '889 Patent, including at least Claims 1 and 9.

84.   BOXX makes and sells hardware and/or software components especially made or especially adapted to practice the invention claimed in the '889 Patent, including at least Claims 1 and 9, and that (i) is a material part of the invention and (ii) is not a staple article or commodity of commerce suitable for substantial non-infringing use at least because it is specifically designed to perform the claimed functionality. Any other use of such hardware and/or software would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental.

85.   On information and belief, BOXX supplies hardware, firmware, and/or software, including software drivers, that are especially made or especially adapted to practice the inventions claimed in the '889 Patent, including at least Claims 1 and 9, to induce third parties, including for example BOXX's customers and/or end-users, to use the Accused Products in the United States, and/or to make, use, sell, and/or offer for sale in the United States other products incorporating the Accused Products in manners that would infringe one or more of the claims of the '889 Patent, including at least Claims 1 and 9.

86.   On information and belief, BOXX offers unique, dedicated, CPU and GPU rendering Arnold recommended hardware. For example, BOXX advertises to customers that the "ray tracing process is hardware intensive and requires substantial computing power, so without a workstation *purpose-built* for local CPU or GPU rendering, you'll fail to optimize Arnold performance."[7] BOXX also advertises that Arnold "runs at peak performance on BOXX."

87.   Therefore, BOXX has contributed to the infringement by others of one or more of the claims of the '889 Patent, including at least Claims 1 and 9.

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[7] *See* https://boxx.com/solutions/media-and-entertainment/arnold (emphasis added).

III.   WILLFUL INFRINGEMENT

88.   At a minimum, BOXX has had actual notice of the '889 Patent, and its infringement thereof, at least as of the filing of this Complaint, yet continues to infringe the '889 Patent, including at least Claims 1 and 9.

89.   Therefore, on information and belief, BOXX's infringement of the '889 Patent has been and continues to be willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or characteristic of a pirate, entitling SiliconArts Technology to increased damages pursuant to 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action pursuant to 35 U.S.C. § 285.

DAMAGES

90.   BOXX's acts of infringement have caused damages to SiliconArts Technology, and SiliconArts Technology is entitled to recover from BOXX the damages sustained by SiliconArts Technology as a result of BOXX's wrongful acts in an amount to be determined at trial.

91.   SiliconArts Technology is entitled to, and now seeks to, recover damages in an amount not less than the maximum amount permitted by law caused by BOXX's acts of infringement, including for damages arising before the filing of the complaint.

92.   As a result of BOXX's acts of infringement, SiliconArts Technology has suffered actual and consequential damages. To the fullest extent permitted by law, SiliconArts Technology seeks recovery of damages in an amount to compensate for BOXX's infringement. SiliconArts Technology further seeks any other damages to which SiliconArts Technology would be entitled to in law or in equity.

ATTORNEYS FEES

93.   SiliconArts Technology is entitled to recover reasonable and necessary attorneys' fees under applicable law.

DEMAND FOR JURY TRIAL

94.   Pursuant to Rule 38 of the Federal Rules of Civil Procedure, SiliconArts Technology demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, SiliconArts Technology prays for judgment and requests that the Court find in its favor and against BOXX. SiliconArts Technology respectfully requests that the Court enter preliminary and final orders, declarations, and judgments against BOXX as are necessary to provide SiliconArts Technology with the following relief:

a.   A judgment that BOXX has infringed and/or is infringing one or more claims of the Asserted Patent, literally or under the doctrine of equivalents, and directly or indirectly, as alleged above;

b.   A judgment that BOXX's infringement of the claims of the Asserted Patent has been willful;

c.   An award for all damages and costs arising out of BOXX's infringement, to adequately compensate SiliconArts Technology for BOXX's infringement of the Asserted Patent, but in no event less than a reasonable royalty, including an accounting of damages up to any verdict as well as supplemental damages for any continuing post-verdict infringement up until entry of the final judgment, with an accounting, as needed;

d.   Pre-judgment and post-judgment interest, jointly and severally, in an amount according to proof;

e.   Treble damages based on BOXX's willful infringement;

f.   An accounting of damages and any future compensation due to SiliconArts Technology for BOXX's infringement (past, present, or future) not specifically

accounted for in a damages award (or other relief), and/or permanent injunctive relief;

g.   A judgment that this case is exceptional and an award of reasonable attorneys' fees as provided by 35 U.S.C. § 285 and enhanced damages as provided by 35 U.S.C. § 284;

h.   An award of costs of suit;

i.   All further relief in law or in equity as the Court may deem just and proper.

DATED: March 17, 2025   Respectfully submitted,

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